

Release Notes

Model	Real Time Mesoscale Analysis (RTMA), UnRestricted Mesoscale Analysis (URMA), Precipitation Analysis (PcpAnl), and Real Time Mesoscale Analysis with Rapid Updates (RTMA-RU)
Version	RTMA/URMA v2.8.2 and PcpAnl v4.0.1
Implementation date/time	07/28/2020 1200 UTC
Purpose	<p>The RTMA, URMA, and Precipitation URMA provide a gridded two-dimensional analysis of NDFD surface and cloud variables, and precipitation for situational awareness, calibration, and verification/validation. The Non-precipitation URMA runs 6 hours after RTMA to include late arriving observational data; precipitation URMA are updated 1/2/3/5/7 days after valid time to include late arriving data/revisions at RFCs. URMA is intended for use in verification, as the analysis of record, and for calibration by National Blend of Models. The RTMA-RU produces analysis every 15 minutes to provide enhanced support for aviation users as well as those in need of a rapidly updated analysis with low latency.</p> <p>PCPANL: hourly/6h/24h precipitation analyses from RFC regional QPEs and MRMS (Stage IV). They are the basis for precipitation RTMA/URMA and CCPA, provide soil moisture driver for NDAS and NLDAS, as input for water.weather.gov, and are used by NWS and greater communities (e.g. USDA via CPC).</p>
Changes being made for this release	<p>RTMA/URMA</p> <ul style="list-style-type: none"> • Improved HRRR wind downscaling/background. • Improved coastal adjustment in RAP downscaling/background. • Improved temperature downscaling/background for RAP, NAM (Hawaii and Puerto Rico nests), and HiresW (Guam). • Improved wind analysis by accounting for sensor height. • Improved dew point temperature analysis by removing legacy smoothing step. • Improved cloud cover analysis by tuning the analysis system, using more GOES observations, and improving their QC. • Enforce consistency between ceiling and cloud cover. • Puerto Rico grid changed from 2.5 km to the 1.25 km NDFD grid. • Updated observation selection algorithm to use only the observation valid closest to the analysis time (Hawaii, Puerto Rico and Guam). • Updated the background error covariance for Alaska to allow for closer fit to temperature observations in complex terrain - especially in cold weather. • Added cloud cover in RTMA-RU. • Added wave analysis for the Great Lakes in URMA-CONUS. • Improved wave analysis for CONUS by incorporating sea/ice masks. • Added wave analysis in RTMA-GUAM. • Improved wave background calculations for all domains. • Use radar-only MRMS QPE instead of Stage II as source for pcpRTMA. • CONUS precipitation URMA: Improved algorithm to fill in gaps in RFC QPE-based precip analysis using gauge QC'd MRMS (where $RQI \geq 0.1$) and CMORPH. • Addition of CONUS snowfall analysis to the pcpURMA suite.

	PCPANL <ul style="list-style-type: none"> Discontinue Stage II analysis. Stage IV now in GRIB2.
Developed by	NOAA / NWS / NCEP / Environmental Modeling Center
Runs on	The National Weather Service (NWS) Weather and Climate Operational Supercomputing System (WCOSS)
Community software	Gridpoint Statistical Interpolation (GSI)
Input	<ul style="list-style-type: none"> RTMA and URMA 2.5 km CONUS grids - the most recent (usually 1 hour) forecast from the downscaled HRRR for all fields except temperature, moisture, and surface pressure which are a blend between the downscaled HRRR and the most recent forecast from the downscaled 3 km NAM CONUS Nest. Where blending occurs, more weight is always given to the most recent forecast, typically this is the HRRR 1-hour forecast. The 1-h downscaled RAP is used to fill around the edges of the domain. The ocean background for significant wave height is from WAVEWATCH III. For the Great Lakes, the background is from the Great Lakes Coastal Forecasting System [URMA only]. AKRTMA/AKURMA 3 km grid - the most recent (usually 1-3 hour) forecast from the downscaled HRRR-AK for all fields except temperature, moisture, and surface pressure which are a blend between the downscaled HRRR and the most recent forecast from the downscaled 3 km NAM AK Nest. Where blending occurs, more weight is always given to the most recent forecast, typically this is the HRRR forecast. The 1-h downscaled RAP is used to fill around the edges of the domain. The background for significant wave height is from WAVEWATCH III [AKURMA only]. HIRTMA/HIURMA 2.5 km grid - the best-available, downscaled 3 km NAM-nest forecast for the first guess. The background for significant wave height is from WAVEWATCH III [HIURMA only]. PRRTMA/PRURMA 1.25 km grid - the best-available, downscaled 3 km NAM-nest forecast for the first guess. The background for significant wave height is from WAVEWATCH III [PRURMA only]. GURTMA 2.5 km grid - downscaled HIRESW-ARW forecast for the first guess. Only forecasts exceeding 5 hours in length are used to allow for the HIRESW-ARW model to spin-up scale-appropriate features. The background for significant wave height is from WAVEWATCH III. RTMA-RU 2.5 km grid - the best available 15 min forecast output from the HRRR for ceiling and visibility. Time interpolation between hourly output is used for all other fields. The best-available downscaled RAP is used to fill around the edges of the domain. All available surface observations (METAR, buoy, ship, surface mesonet), low-level satellite winds, ASCAT winds. WindSat winds, and GOES Imager sky cover observations.

	<ul style="list-style-type: none"> ● PCPANL/PCPRTMA/PCPURMA - RFC QPEs; NOHRSC snowfall analysis, radar-only and gauge-corrected MRMS QPEs, MRMS RQI, CMORPH.
Output and where to find it	ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/rtma/prod/ ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/urma/prod/ ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/pcpanl/prod/ http://www.ftp.ncep.noaa.gov/data/nccf/com/rtma/prod/ http://www.ftp.ncep.noaa.gov/data/nccf/com/urma/prod/ http://www.ftp.ncep.noaa.gov/data/nccf/com/pcpanl/prod/ http://www.nomads.ncep.noaa.gov/pub/data/nccf/com/rtma/prod/ http://www.nomads.ncep.noaa.gov/pub/data/nccf/com/urma/prod/ http://www.nomads.ncep.noaa.gov/pub/data/nccf/com/pcpanl/prod/ http://mag.ncep.noaa.gov/observation-type-area.php
Primary users	<ul style="list-style-type: none"> ● NWS National Centers ● Weather Forecast Offices ● Global Community ● Federal Aviation Administration
In the future	<ul style="list-style-type: none"> ● Extend the analysis from two to three dimensions. ● Replace the GSI with JEDI as the data assimilation system. ● Add Hawaii pcpURMA. ● Add a grid of precipitation duration for pcpURMA

For more information on this model, please contact ncep.pmb.dataflow@noaa.gov .